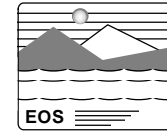


ESDIS



ECS

Technology Transfer Testbed Overview

Introduction

Karen Moe/ESDIS

Tech Transfer Process

Bob Harberts/HSTX

Testbed Overview

Steve Shantzis/ECS

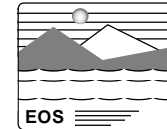
Karen L. Moe

ESDIS Prototyping Manager

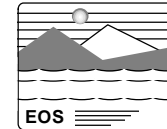
301-286-5998

karen.moe@gsfs.nasa.gov

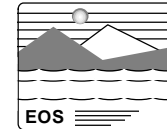
http://spsosun.gsfc.nasa.gov/EOSDIS_evol.html



- **Risk Mitigation**
 - Identify risks, map prototypes to risks, augment where risk not adequately covered, manage via ESDIS Segment managers
- **Technology Insertion**
 - Leverage external research
 - » Use Workshop format to target research to EOSDIS components
 - Focus on NRAs, ESDIS risk-based prototypes, and ECS Collaborative prototypes
 - Include promising technologies as they surface (e.g. 930 collaboration)
 - Develop Technology Transfer/Insertion Approaches
 - » Joint ECS/ ESDIS Technology Transfer Testbed (ET3)
- **Enhancements / Evolution**
 - Starting in FY'97 ESDIS to support new research initiatives
 - » Competitive research announcement via ESDIS CAN
 - » CAN release in early 1996 (budget permitting)

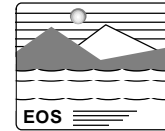


- **Established prototyping info access via WWW**
 - ESDIS, CAN, (some) NRA prototype status
 - Link to existing ECS EDHS Home Page
- **Annual Update of Project - Level Risk Assessment**
- **Current ESDIS Prototyping**
 - Briefed in Workshop Part 1 (Nov. 13-14, 1995)
 - Completed 3, In progress 22, In planning 5
- **Technology Transfer Workshops**
 - 1st Held Jan. 25-27, 1995 with 14 NRA, 6 CAN PI Teams
 - 2nd Nov. 13-17, 1995 with 4 ECS collaborations, 25 ESDIS
 - » Workshop Summaries on www ESDIS prototyping
 - 3rd Feb. 7-9, 1996 with 14 NRA, several NRA, ESDIS, CAN demos
 - Targeting
- **Developing technology transfer process**
 - Initial hardware “micro-DAAC” purchased by ECS STL
- **Initiating ESDIS Cooperative Agreement Notice**

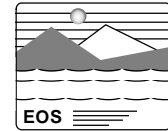


Technology Transfer/Insertion Phases and Criteria

E X A M P L E	Applied R&D Environment	T E S T B E D	EOSDIS Testbed Environment	O P S	EOSDIS Operational Environment
	<ul style="list-style-type: none"> HQ Code Y NRA Codes (HPCC) , X, S NASA, ESDIS CANs. 		<ul style="list-style-type: none"> User Site Testbeds ECS Tech Testbed HAIS Evaluation Packages 		<ul style="list-style-type: none"> DAACs (ECS or Unique) SCFs, User Workstations Other (EDOS, Networks)
	G O A L <ul style="list-style-type: none"> Proof-of-Concept Demonstrate Benefits to EOSDIS Demonstrate Feasibility 		T R A N S F E R <ul style="list-style-type: none"> User Test and Evaluation Show Interoperability (linkages) Measure Benefits Test Usability, Utility 		C R I T E R I A <ul style="list-style-type: none"> Operational Systems Operable Maintainable Cost Effective
C R I T E R I A	<ul style="list-style-type: none"> Measure Performance Show Promise of <ul style="list-style-type: none"> Cost Savings Enhancements Quality Improvements Utility Study to Show <ul style="list-style-type: none"> Operable Scalable (individual need vs full system need) Verify User Interest "Affordable" in 5 yrs 	P A S S E D	<ul style="list-style-type: none"> Establish <ul style="list-style-type: none"> Performance Benefit Cost Benefit Operable Scalable (to full operations sys) Maintainable Establish User Demand / Acceptance Funding Plan to Show <ul style="list-style-type: none"> Req't Changes Accepted Program / Project / Other Funding Identified "Affordable" in 2 years 	P A S S E D	



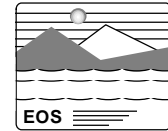
- **EOSDIS factors for success include the ability to understand technological areas of risk by:**
 - identifying and assessing risk areas
 - fostering development of solutions
 - recognizing opportunities
 - implementing solutions appropriately



- **Purpose:**
 - Address risk mitigation and technology change recognizing
 - » Technology Push - R&D Opportunities
 - » Technology Pull - ECS Evolution
- **Goal:**
 - Facilitate the assessment and acceptance of developed technologies into the appropriate ECS development process and operational release

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EFFECTIVE RISK MITIGATION INVOLVES:



Risk Assessments

R&D Solicitations

**ECS Architecture
and Systems Development**

Prototypes

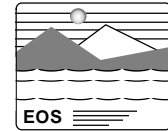
Development Teams

Researchers

... AND SOMETHING MORE ...

ESDIS

... A Process for Technology Transfer



Risk Assessments

R&D Solicitations

**ECS Architecture
and Systems Development**

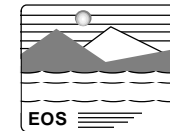
Prototypes

Development Teams

Researchers

ESDIS

EOSDIS Technology Transfer Overview



Emerging Technology

ECS
Internal
Prototypes

Collaborative
Studies

EOSDIS
Applied
Prototypes:
NRA
Code 505
Networks

Technology
Program
Prototypes:
CAN (HPCC)
DLT
NII

Transfer Paths

↔
Visibility and
presentations

↔
Testbed
support and
technology
submission

→
Maturing
standards, e.g.
CORBA, ESQ

→
Validate
emerging
opportunities
e.g. JAVA

Risk Mitigation Interface for Evolutionary Enhancements

Push R&D	Pull ECS Development
Innovations Solutions Ideas Experiments Prototypes Opportunities	Requirements Problems to Solve Design Options Alternatives Improvements Challenges

Technical Forums
B32 Demo Lab
PWs

Suitability Assessment
and Evaluation
Testbed

Just in Time
(JIT) Insert

Fast Track Extensions
"caveat emptor"

Accept- ance Paths

→
Targeted
E.P.
Integration

←
Architecture
Component
Configuration
Support

→
e.g. Between
E.P. and
Release
Opportunities

→
e.g. Post
Release
Opportunities

ECS Development Process

Evaluation Package (E.P.) Teams	System Release Development Teams	Operations
--	---	------------

E.P.s → Releases → Ops.

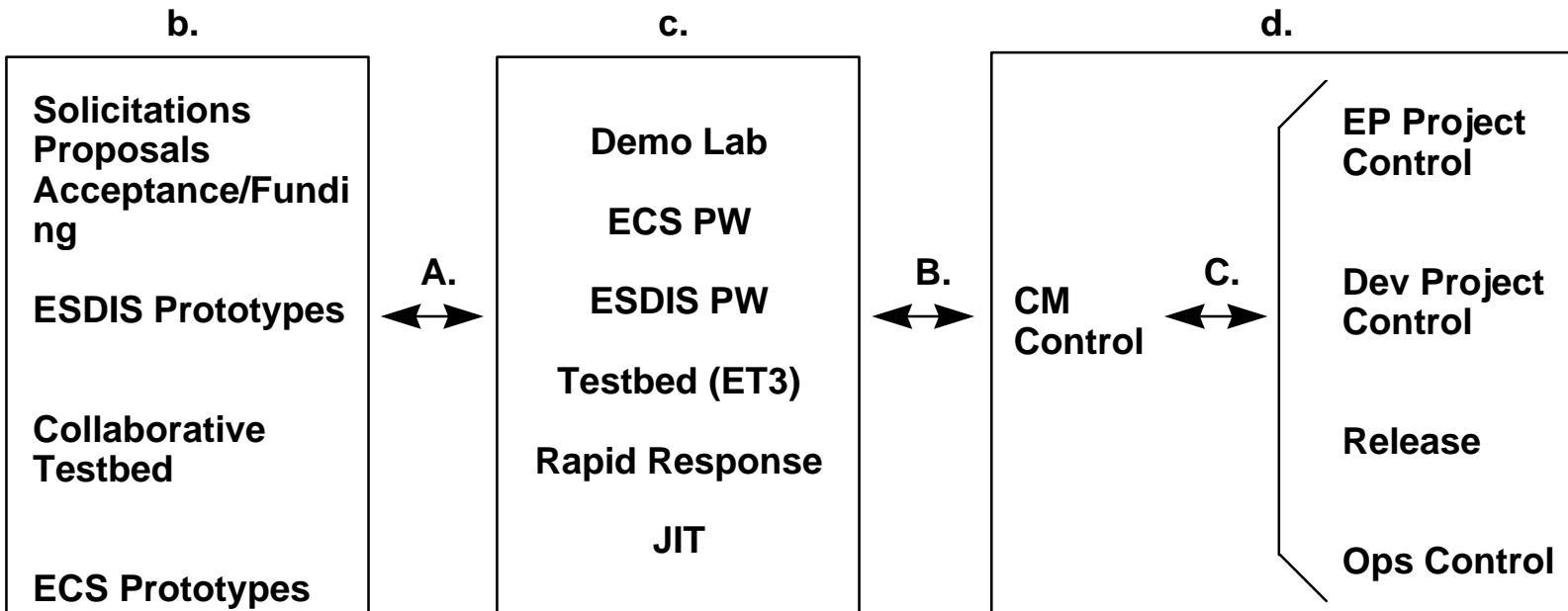
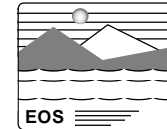
E.P. 7	Rel. A
E.P. 8	Rel. B
E.P. 9 ...	Rel. C

Applicable ECS System
Architecture Components

CLS	MSS	PLS
DSS	IOS	DPS
DMS		INS

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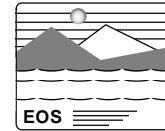
a.
ESDIS/ECS Oversight



Processes:

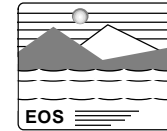
Horizontal	Vertical
A. Push/pull, inclusion, supporting, testing	a. Risk mitigation, planning, decisions
B. Promotion, integration, support, transfer	b. Solicitation, selection, managing
C. Graduation, management, maintenance	c. Supporting, testing, selecting
	d. Developing, integrating, supporting

Overview of ECS Technology Transfer Testbed (ET3)



Testbed Objectives

- **Context: Flow of New Technology to/from ECS**
- **Scope of Operations**
- **Operations Concept**
 - Demonstration Center
 - Technical Reference Library
 - Technical Evaluation
- **Facility**
 - ET3 as a logical micro-DAAC
 - ET3 facility diagram
 - Testbed as a distributed facility
- **Installation Schedule**
- **Contact Information**



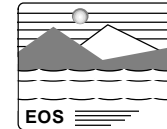
Provide a two way conduit for technology transfer

- **NRA/CAN research, into ECS development; and**
- **ECS development into the NRA/CAN community,**

by ...

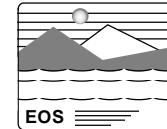
- **providing an environment for demonstrating results of ongoing research, technology produced by the NRA/CAN and ECS;**
- **providing a center for public access to technical information, datasets, documentation and services which will help researchers provide capability to interface to the ECS;**
- **providing a realistic demonstration and test environment which will contribute to technical analysis of suitability for technologies to be inserted into ECS.**

Role in Technology Transfer to/from ECS



Technology Transfer/Insertion Phases and Criteria

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	Proof-of-Concept <ul style="list-style-type: none"> Demonstrate Benefits to EOSDIS Demonstrate Feasibility 		User Test and Evaluation <ul style="list-style-type: none"> Show Interoperability (linkages) Measure Benefits Test Usability, Utility 		Operational Systems <ul style="list-style-type: none"> Operable Maintainable Cost Effective
G O A L	<ul style="list-style-type: none"> Measure Performance Show Promise of <ul style="list-style-type: none"> Cost Savings Enhancements Quality Improvements 	T R A N S F E R	<ul style="list-style-type: none"> Establish <ul style="list-style-type: none"> Performance Benefit Cost Benefit Operable Scalable (to full operations sys) Maintainable 	C R I T E R I A	
	<ul style="list-style-type: none"> Utility Study to Show <ul style="list-style-type: none"> Operable Scalable (individual need vs full system need) Verify User Interest "Affordable" in 5 yrs 		<ul style="list-style-type: none"> Establish User Demand / Acceptance Funding Plan to Show <ul style="list-style-type: none"> Req't Changes Accepted Program / Project / Other Funding Identified "Affordable" in 2 years 		
C R I T E R I A		P A S S E D		P A S S E D	

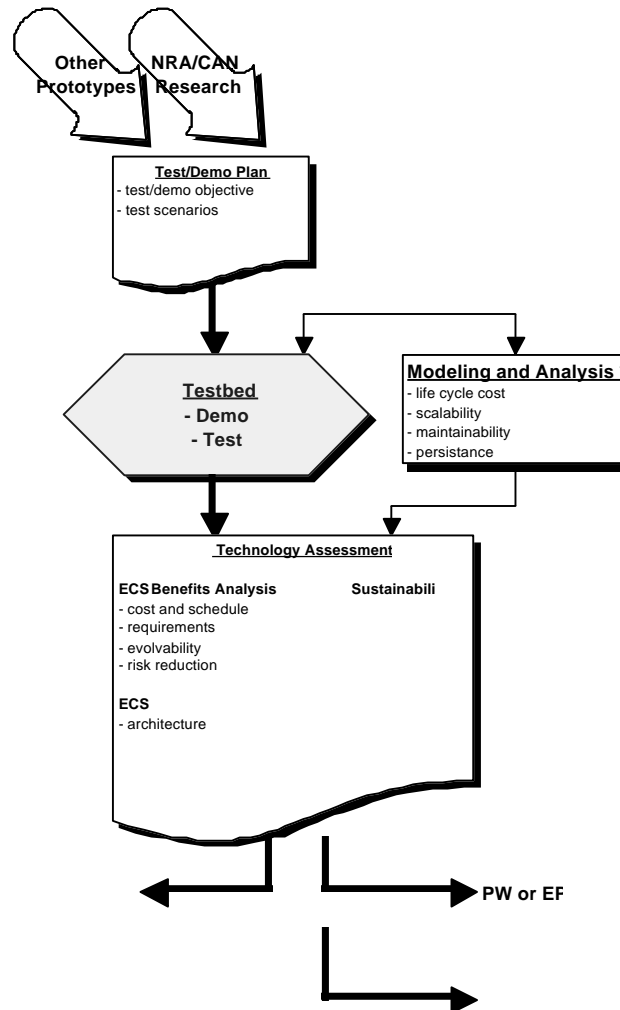
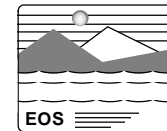


The ET3 will provide three capabilities:

- **Demonstration Center.** Technology developed by ECS, ESDIS, NRA/CAN and others can be hosted (or linked) and made available for both scheduled and unscheduled demonstrations.
- **ECS Technical Reference Library.** Web accessible information related to the interface between ECS and NRA/CAN research and development, including testbed technical information, test datasets, and information on NRA/CAN demonstrations.
- **Technology Evaluation Facility.** Facility for obtaining a controlled evaluation of technologies which may be suitable for use in ECS. Facility will have an environmental configuration which is well defined and documented, and reference datasets available as test drivers.

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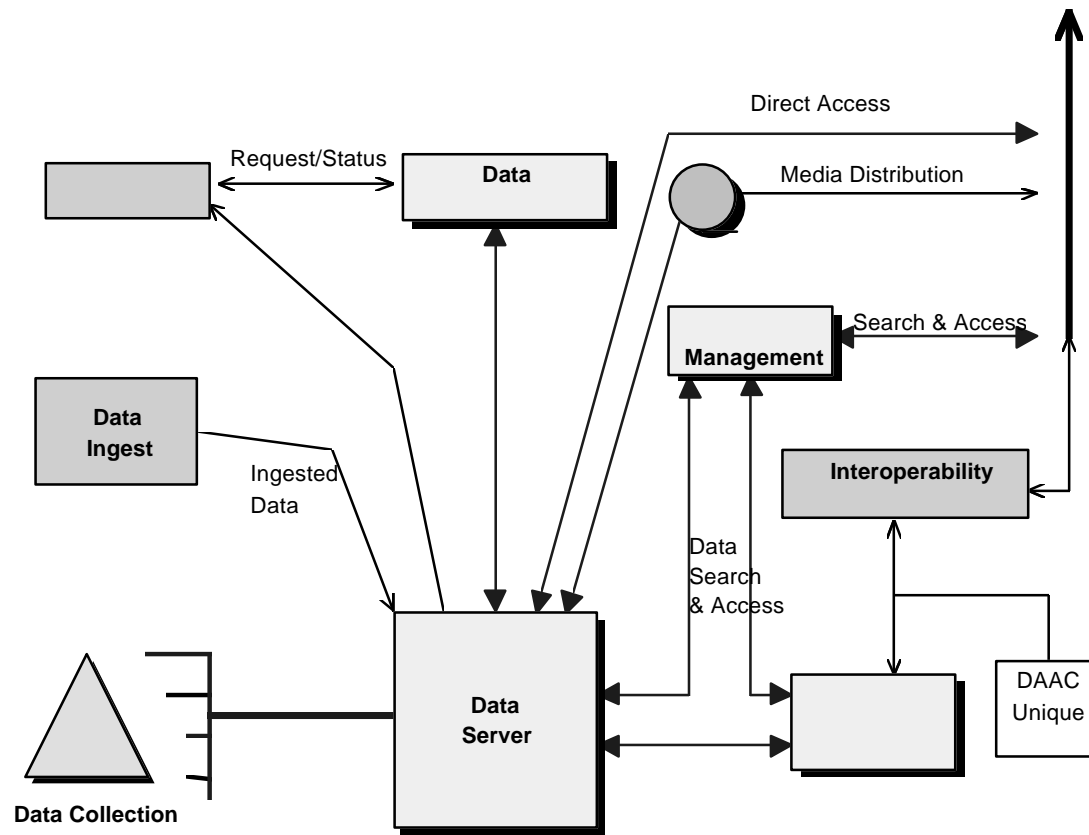
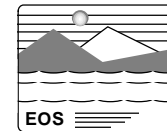
ECS Technology Transfer Testbed: Concept



* Modeling and Analysis studies are funded by NASA on an as-needed basis.

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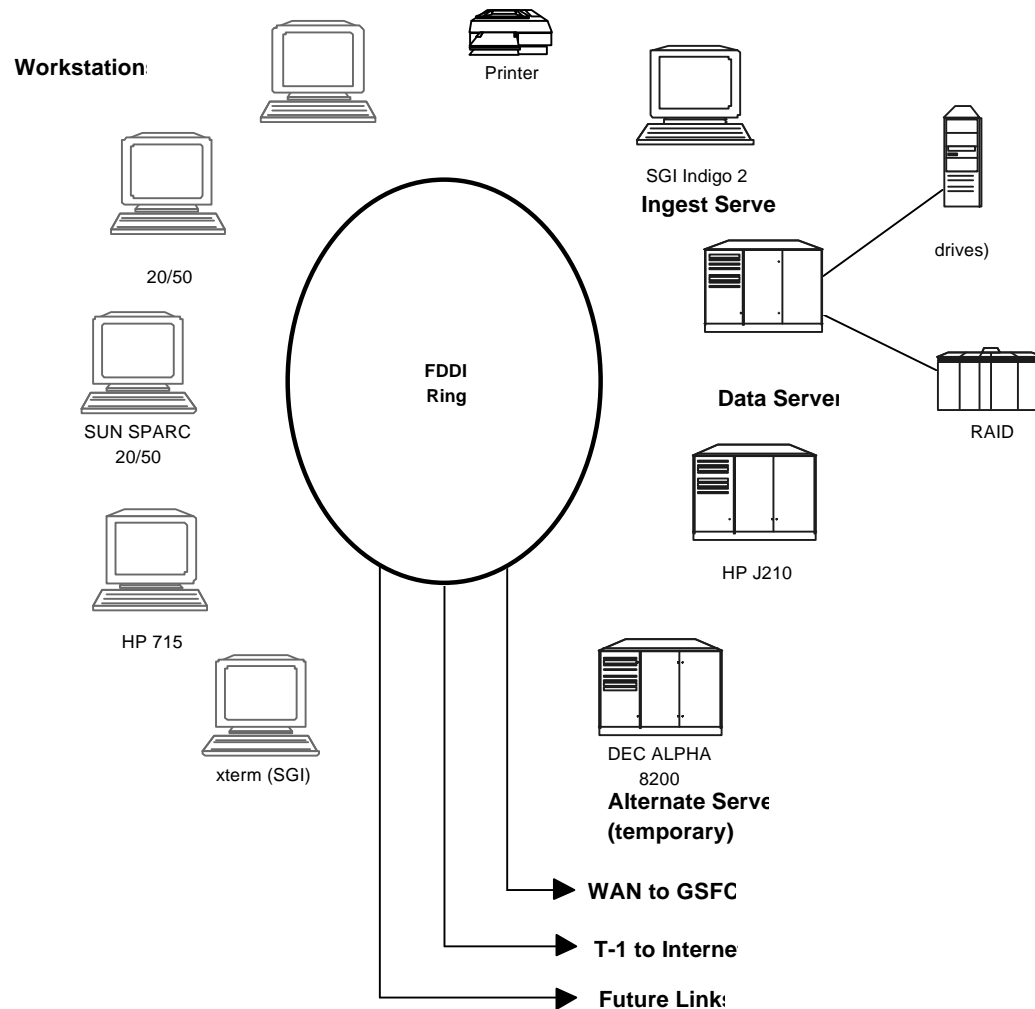
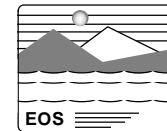
ECS Technology Transfer Testbed has micro-DAAC capabilities

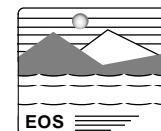


- Capability in first half, 1999
- Capability by end of 1999
- Capability not planned

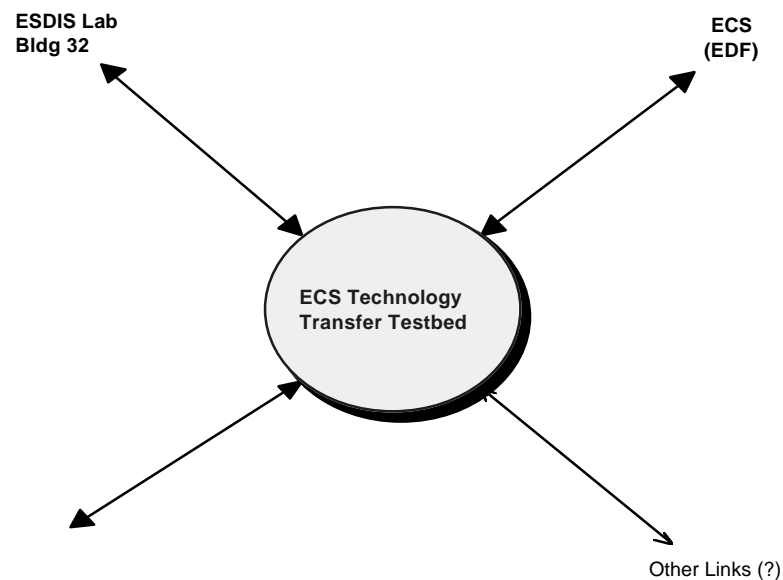
ESDIS

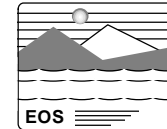
ET3 Facility Diagram





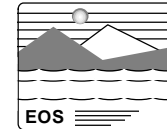
ECS Technology Transfer Testbed: Interfaces ce





Schedule (02/06/95, subject to revision)

- | | |
|-----------------|-------------------------------------|
| • Feb 1, 1996 | Core hardware partially operational |
| • April 1, 1996 | Web site open |
| • May 15, 1996 | Core hardware fully operational |
| • Summer, 1996 | NRA/CAN demonstrations |
| • Fall, 1996 | NRA/CAN demonstrations/evaluations |



- **Web home page links from :**
 - Link from <http://edhs1.gsfc.nasa.gov/>
 - Link from <http://ecsinfo.hitc.com/>
 - <http://newsroom.hitc.com/techass/tahome.html>

- **Contact**

**Jerry Pisarcik
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(301) 925-1194**